



Algebra 1 Correlation to Mathematics Frameworks

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
OPERATIONS WITH REAL NUMBERS			
A1.1.1	Compare real number expressions.	HA1-025	Comparing and Ordering Real Numbers
A1.1.2	Simplify square roots using factors.	HA1-480	Finding the Square Roots of Rational Numbers
A1.1.3	Understand and use the distributive, associative, and commutative properties.	HA1-075	Simplifying Algebraic Expressions by Combining Like Terms
		HA1-076	Basic Distributive Property
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
		HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		HA1-130	Identifying Postulates, Theorems, and Properties
		HA1-245	Adding and Subtracting Polynomials
		HA1-920	Simplifying Algebraic Expressions Using the Distributive Property
		HA1-255	Multiplying Two Binomials Using the FOIL Method
A1.1.4	Use the laws of exponents for rational exponents.	Future Release	Algebra Lesson: HA1-492 -Simplifying Squares and Cube Roots
A1.1.5	Use dimensional (unit) analysis to organize conversions and computations.	MPA-062	Converting Units in Customary System
		MPA-061	Converting Metric Units of Length, Capacity, and Mass
		MPA-063	Converting Units Between Metric and Customary System
LINEAR EQUATIONS AND INEQUALITIES			
A1.2.1	Solve linear equations.	HA1-115	Using the Addition and Subtraction Properties for Equations
		HA1-120	Using the Multiplication and Division Properties for Equations
		HA1-125	Solving Equations Using More Than One Property
		HA1-140	Solving Equations by Combining Like Terms
		HA1-145	Solving Equations with Variables on Both Sides
		HA1-382	Solving Linear Equations Using the Graphing Calculator
A1.2.2	Solve equations and formulas for a specified variable.	HA1-175	Solving Literal Equations
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
A1.2.3	Find solution sets of linear inequalities when possible numbers are given for the variable.	HA1-100	Finding Solution Sets of Open Sentences from Given Replacement Sets
A1.2.4	Solve linear inequalities using properties of order.	HA1-185	Solving Inequalities Using the Addition and Subtraction Properties
		HA1-190	Solving Inequalities Using the Multiplication and Division Properties
		HA1-195	Solving Inequalities Using More Than One Property
A1.2.5	Solve combined linear inequalities.	HA1-200	Combined Inequalities
		HA1-205	Solving Combined Inequalities
A1.2.6	Solve word problems that involve linear equations, formulas, and inequalities.	HA1-150	Writing an Equation to Solve Word Problems
		HA1-155	Writing an Equation to Solve Consecutive Integer Problems
		HA1-160	Writing an Equation to Solve Distance, Rate, and Time Problems
		HA1-805	Applying Algebra Concepts

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
		HA1-870	Solving Problems with Systems of Linear Equations and Inequalities
RELATIONS AND FUNCTIONS			
A1.3.1	Sketch a reasonable graph for a given relationship.	HA1-380	Graphing Linear Equations
		HA1-180	Graphing Equations and Inequalities on the Number Line
		HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-415	Graphing Linear Inequalities with Two Variables
		HA1-416	Graphing Linear Inequalities with Two Variables Using the Graphing Calculator
		HA1-455	Solving Systems of Linear Equations by Graphing
		HA1-887	Applications of Absolute Value, Step, and Constant Functions
		HA1-965	Determining the Best-Fitting Line
A1.3.2	Interpret a graph representing a given situation.	HA1-441	Applications of Functions and Relations Involving Distance, Rate, and Time
		HA1-455	Solving Systems of Linear Equations by Graphing
		HA1-892	Data Analysis Using the Graphing Calculator
		HA1-955	Analyzing Linear Functions
		HA1-960	Real-World Applications of Linear Functions
A1.3.3	Understand the concept of a function, decide if a given relation is a function, and link equations to functions.	HA1-436	Identifying Relations
		HA1-437	Identifying Relations as Functions
		HA1-438	Finding the Domain and Range of Functions
		HA1-439	Using Function Notation
		HA1-892	Data Analysis Using the Graphing Calculator
A1.3.4	Find the domain and range of a relation.	HA1-438	Finding the Domain and Range of Functions
		HA1-439	Using Function Notation
GRAPHING LINEAR EQUATIONS AND INEQUALITIES			
A1.4.1	Graph a linear equation.	HA1-180	Graphing Equations and Inequalities on the Number Line
		HA1-380	Graphing Linear Equations
		HA1-382	Solving Linear Equations Using the Graphing Calculator
		HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-401	How Variations of "m" and "b" Affect the Graph of $y = mx + b$
A1.4.2	Find the slope, x-intercept, and y-intercept of a line given its graph, its equation, or two points on the line.	HA1-380	Graphing Linear Equations
		HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-398	Graphing Linear Equations Using Slope and y-Intercept or Slope and a Point
		HA1-405	Determining an Equation of a Line Given the Slope and Coordinates of One Point
		HA1-410	Determining an Equation of a Line Given the Coordinates of Two Points
A1.4.3	Write the equation of a line in slope-intercept form. Understand how the slope and y-intercept of the graph are related to the equation.	HA1-385	Finding the Slope of a Line from its Graph or from the Coordinates of Two Points
		HA1-394	Interchanging Linear Equations Between Standard Form and Slope-Intercept Form
		HA1-395	Drawing a Line Using Slope-Intercept and Determining if Two Lines are Parallel
		HA1-405	Determining an Equation of a Line Given the Slope and Coordinates of One Point
		HA1-410	Determining an Equation of a Line Given the Coordinates of Two Points
A1.4.4	Write the equation of a line given appropriate information.	HA1-405	Determining an Equation of a Line Given the Slope and Coordinates of One Point
		HA1-410	Determining an Equation of a Line Given the Coordinates of Two Points
A1.4.5	Write the equation of a line that models a data set and use the equation (or the graph of the equation) to make predictions. Describe the slope of the line in terms of the data, recognizing that the slope is the rate of change.	HA1-955	Analyzing Linear Functions
		HA1-960	Real-World Applications of Linear Functions
		HA1-965	Determining the Best-Fitting Line

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
A1.4.6	Graph a linear inequality in two variables.	HA1-415	Graphing Linear Inequalities with Two Variables
		HA1-416	Graphing Linear Inequalities with Two Variables Using the Graphing Calculator
PAIRS OF LINEAR EQUATIONS AND INEQUALITIES			
A1.5.1	Use a graph to estimate the solution of a pair of linear equations in two variables.	HA1-455	Solving Systems of Linear Equations by Graphing
A1.5.2	Use a graph to find the solution set of a pair of linear inequalities in two variables.	HA1-475	Graphing the Solution Set of a System of Linear Inequalities
A1.5.3	Understand and use the substitution method to solve a pair of linear equations in two variables.	HA1-460	Solving Systems of Linear Equations by the Substitution Method
A1.5.4	Understand and use the addition or subtraction method to solve a pair of linear equations in two variables.	HA1-465	Solving Systems of Linear Equations by the Addition/Subtraction Method
A1.5.5	Understand and use multiplication with the addition or subtraction method to solve a pair of linear equations in two variables.	HA1-470	Solving Systems of Linear Equations by the Multiply/Add/Subtract Method
A1.5.6	Use pairs of linear equations to solve word problems.	HA1-805	Applying Algebra Concepts
		HA1-870	Solving Problems with Systems of Linear Equations and Inequalities
POLYNOMIALS			
A1.6.1	Add and subtract polynomials.	HA1-245	Adding and Subtracting Polynomials
A1.6.2	Multiply and divide monomials.	HA1-220	Identifying and Multiplying Monomials
		HA1-225	Dividing Monomials and Simplifying Expressions Having an Exponent of Zero
A1.6.3	Find powers and roots of monomials (only when the answer has an integer exponent).	HA1-230	Raising a Monomial or Quotient of Monomials to a Power
		HA1-490	Simplifying Square Roots
A1.6.4	Multiply polynomials.	HA1-920	Simplifying Algebraic Expressions Using the Distributive Property
		HA1-255	Multiplying Two Binomials Using the FOIL Method
		HA1-260	Squaring a Binomial and Finding the Product of a Sum and Difference
A1.6.5	Divide polynomials by monomials.	HA1-355	Dividing Polynomials
		HA1-863	Dividing Polynomials Using Long Division
A1.6.6	Find a common monomial factor in a polynomial.	HA1-270	Factoring the Greatest Common Monomial Factor from a Polynomial
		HA1-295	Factoring by Removing a Common Factor and Grouping
A1.6.7	Factor the difference of two squares and other quadratics.	HA1-275	Factoring the Difference Between Two Squares and Perfect Trinomial Squares
		HA1-276	Factoring Sums and Differences of Cubes
A1.6.8	Understand and describe the relationships among the solutions of an equation, the zeros of a function, the x-intercepts of a graph, and the factors of a polynomial expression.	HA1-280	Factoring $x^2 + bx + c$ When c is Greater Than Zero
		HA1-285	Factoring $x^2 + bx + c$ When c is Less Than Zero
		HA1-290	Factoring $ax^2 + bx + c$
		HA1-291	Factoring Quadratic Equations Using the Graphing Calculator
		HA1-295	Factoring by Removing a Common Factor and Grouping
		HA1-300	Factoring a Polynomial Completely
		HA1-305	Solving Polynomial Equations by Factoring
		HA1-310	The Practical Use of Polynomial Equations
		HA1-536	Solving Quadratic Equations Using the Graphing Calculator
ALGEBRAIC FUNCTIONS			
A1.7.1	Simplify algebraic ratios.	HA1-315	Defining Rational Expressions and Determining the Restricted Values
		HA1-320	Simplifying Rational Expressions
		HA1-325	Multiplying Rational Expressions
		HA1-330	Dividing Rational Expressions
		HA1-335	Finding the LCD of Rational Expressions and Changing Fractions to Equivalent Fractions
		HA1-340	Adding and Subtracting Rational Expressions
		HA1-350	Simplifying Complex Fractions
		HA1-360	Expressing Ratios in Simplest Form and Solving Equations Involving Proportions
A1.7.2	Solve algebraic proportions.	HA1-365	Solving Rational Equations

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QUADRATIC, CUBIC, AND RADICAL EQUATIONS			
A1.8.1	Graph quadratic, cubic, and radical equations.	HA1-536	Solving Quadratic Equations Using the Graphing Calculator
		HA1-927	Graphing $f(x) = ax^2$ Using Dilations
		HA1-928	Graphing $f(x) = ax^2$ Using Dilations and Reflections
		HA1-929	Graphing $f(x) = ax^2 + c$ Using Dilations, Reflections, and Vertical Translations
		HA1-935	Analyzing Graphs of Quadratic Functions
		HA1-945	Real-World Applications of Quadratic Functions
A1.8.2	Solve quadratic equations by factoring.	HA1-291	Factoring Quadratic Equations Using the Graphing Calculator
		HA1-295	Factoring by Removing a Common Factor and Grouping
		HA1-300	Factoring a Polynomial Completely
		HA1-305	Solving Polynomial Equations by Factoring
		HA1-310	The Practical Use of Polynomial Equations
A1.8.3	Solve quadratic equations in which a perfect square equals a constant.	HA1-525	Solving Quadratic Equations Involving Perfect Square Expressions
A1.8.4	Complete the square to solve quadratic equations.	HA1-530	Solving Quadratic Equations by Completing the Square
A1.8.5	Derive the quadratic formula by completing the square.	HA1-535	Developing the Quadratic Formula and Using it to Solve Equations
A1.8.6	Solve quadratic equations using the quadratic formula.	HA1-535	Developing the Quadratic Formula and Using it to Solve Equations
A1.8.7	Use quadratic equations to solve word problems.	HA1-805	Applying Algebra Concepts
		HA1-935	Analyzing Graphs of Quadratic Functions
		HA1-940	Applications of Quadratic Equations
		HA1-945	Real-World Applications of Quadratic Functions
A1.8.8	Solve equations that contain radical expressions.	HA1-510	Solving Radical Equations
		HA1-515	Using the Pythagorean Theorem
		HA1-516	Applications of the Pythagorean Theorem
		HA1-520	Finding the Distance Between Two Points on a Coordinate Plane
A1.8.9	Use graphing technology to find approximate solutions of quadratic and cubic equations.	HA1-291	Factoring Quadratic Equations Using the Graphing Calculator
		HA1-536	Solving Quadratic Equations Using the Graphing Calculator
MATHEMATICAL REASONING AND PROBLEM SOLVING			
A1.9.1	Use a variety of problem-solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, and working backwards.	MPA-007	Solving Problems Using Logical Reasoning Skills
		MPA-116	Solving Real-Life Problems by Using Guess-and-Check and Working Backwards
		Throughout	
A1.9.2	Decide whether a solution is reasonable in the context of the original situation.	MPA-006	Determining Reasonableness of Answers and Appropriate Method of Computation
A1.9.3	Use the properties of the real number system and the order of operations to justify the steps of simplifying functions and solving equations.	HA1-003	Order of Operations
		HA1-075	Simplifying Algebraic Expressions by Combining Like Terms
		HA1-076	Basic Distributive Property
		HA1-080	Simplifying and Evaluating Algebraic Expressions Containing Grouping Symbols
		HA1-085	Simplifying Expressions Using the Properties of Real Numbers
		HA1-090	Simplifying Expressions Using the Property of -1
		HA1-130	Identifying Postulates, Theorems, and Properties
		Throughout	
A1.9.4	Understand that the logic of equation solving begins with the assumption that the variable is a number that satisfies the equation and that the steps taken when solving equations create new equations that have, in most cases, the same solution set as the original. Understand that similar logic applies to solving systems of equations simultaneously.	Throughout	

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A1.9.5	Decide whether a given algebraic statement is true always, sometimes, or never (statements involving linear or quadratic expressions, equations, or inequalities).	HA1-881	Completing and Validating Algebraic Proofs
		Throughout	
A1.9.6	Distinguish between inductive and deductive reasoning, identifying and providing examples of each.	MPA-007	Solving Problems Using Logical Reasoning Skills
A1.9.7	Identify the hypothesis and conclusion in a logical deduction.	HA1-130	Identifying Postulates, Theorems, and Properties
A1.9.8	Use counterexamples to show that statements are false, recognizing that a single counterexample is sufficient to prove a general statement false.	HA1-881	Completing and Validating Algebraic Proofs

MM1-Fundamentals of Mathematics
MPA-Pre-Algebra
HA1-Algebra 1

Note: Standards were taken from the Indiana Mathematics Curriculum Framework document adopted by the Indiana State Board of Education in September 2000.